

Inhomogeneous broadening of the EPR signal of Yb³⁺ ions in domain walls of lightly doped antiferromagnetic cuprates

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Abstract

Distortion of the long-range antiferromagnetic order in the YBa₂Cu₃O_{6+y} is investigated by the electron paramagnetic resonance (EPR) measurements for $y = 0.1 - 0.4$. In the case of the doping level $y = 0.2, 0.3$ the EPR signal consists of narrow and broad lines, which we relate to formation of the charged domain walls. Our theoretical analysis of the inhomogeneous EPR broadening due to the local antiferromagnetic order distortion in domain walls is well consistent with experimental results for the case of coplanar elliptical domain walls.

Keywords

Elliptical domain wall, EPR, YBCO